

8-6: Quotients with Radicals

Warm-Up: Simplify.

a. $\frac{1}{\frac{1}{3}}$

b. $\frac{2}{.6}$

You just simplified the denominator of each fraction. This is an idea that can be used with radicals in the denominator as well, because radicals in the denominator is a bad thing.

Rationalize the Denominator:

Example 1: Rationalize $\frac{30}{\sqrt{10}}$, then simplify.

***To get rid of a radical, multiply the numerator and denominator by the radical n times, where n is the root that is expressed.

Example 2: Simplify.

a. $\sqrt{\frac{1}{5b}}$

b. $\frac{20}{\sqrt{25n^7}}$

Recall: The complex conjugate of a complex number $a + bi$ is $a - bi$.

Recall how to simplify: $\frac{3+2i}{6-4i}$

Now, you will use this same idea of a conjugate to simplify a ratio with a radical in the denominator when the radical is not by itself.

Example 3: Simplify $\frac{2+3\sqrt{5}}{2-3\sqrt{5}}$.

Homework:

"THE REASON MOST PEOPLE NEVER REACH THEIR GOALS IS THAT THEY DON'T DEFINE THEM, OR EVER SERIOUSLY CONSIDER THEM AS BELIEVABLE OR ACHIEVABLE. WINNERS CAN TELL YOU WHERE THEY ARE GOING, WHAT THEY PLAN TO DO ALONG THE WAY, AND WHO WILL BE SHARING THE ADVENTURE WITH THEM." - DENIS WATLEY